

**Eur päisches Patentamt**  
**19 European Patent Office**  
**Office européen des brevets**

**11 Publication No.: 0 097 851**  
**A1**

**12 EUROPEAN PATENT APPLICATION**

**21 Application No.: 83105642.9**

**51 Int. Cl.<sup>3</sup>: A 61 B 10/00**

**22 Filing date: 9<sup>th</sup> June 1983**

**30 Priority: 24<sup>th</sup> June 1982 DE 3223657**

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**43 Date of publication of the application:**  
11<sup>th</sup> Jan. 1984 Bulletin 84/2

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**84 Designated contracting States:**  
CH FR GB IT LI SE

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**54 Method and Device for Recognizing the Time of**  
**Ovulation in Women**

**57 Device for recognizing the time of ovulation in**  
**the female cycle by determination of the basal**  
**temperature at regular intervals using a**  
**temperature sensor, the temperature sensor being**  
**integrated in the lower side of a watch which**  
**also contains a device for recording and storing**  
**the woman's temperature at a specific point in**  
**time every 24 hours, and for comparing this**  
**temperature value with the temperature value**  
**recorded and stored 24 hours and/or 48 hours**  
**beforehand.**

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Method and Device for Recognizing the Time of Ovulation  
in Women  
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The invention relates to a device for recognizing the time of ovulation in the female cycle by determination of the basal temperature at regular intervals using a temperature sensor.

A women of child-bearing age is only fertile on three to four days out of the 30 days of a month. For family planning, i.e. for prevention of unwanted pregnancies or for planning a pregnancy, it is important to be able to recognize this short period of monthly fertility without difficulty. For this purpose, use is made of the fact that during the female sexual cycle, at the start of the fertile days, the body temperature rises within a few hours by 0.7 to 0.8°C due to the hormonal change that takes place during ovulation.

A method of determining the time of ovulation by daily measurement and recording of the "wake-up temperature" has already been described. This method requires the woman to measure and record her body temperature every morning before getting up. However, medical experience shows that in many cases the recordings of basal temperatures are not very exact because the woman forgets to measure the temperature or because she measures it only after getting up, which leads to falsification of the wake-up temperature because an unspecific movement-related warmth is added to the body temperature at rest, and this falsifies the measurement result.

A special thermometer for conduct of this method is known from DE-OS 24 49 165. However, this thermometer

in disadvantageous in that the woman must insert it into her body immediately after waking up and the temperature measured must be recorded each time.

Thus, the invention is based on the object of providing a method and a device which permit reliable determination of the rise in basal temperature with a fever thermometer at the time of waking up, even independently of a measuring process that is consciously perceived by the woman in the usual manner.

According to the invention this object is achieved by the temperature sensor being integrated in the lower side of a watch which also contains a device for recording and storing the woman's temperature at a specific point in time every 24 hours, and for comparing this temperature value with the temperature value recorded and stored 24 hours and/or 48 hours beforehand.

The device according to the invention makes use of the fact that it is not necessary at all to determine the rise in basal temperature at the time of waking up; rather, the body temperature to be determined is that reached in the early morning hours after a few hours of sleep. Accordingly, the woman's body temperature is measured with a temperature sensor touching the woman's forearm at a specific time - for example 3 a.m. or 4 a.m. - and recorded in an electronic memory present in the watch. The woman's body temperature is measured every 24 hours at exactly the same time of day and in the same manner, and this value is determined with the saved value and/or values by formation of the difference of the amounts. If this difference or one of these differences exceeds a predefined reference value, which should be adjusted to about  $0.5^{\circ}\text{C}$ , this indicates that ovulation has occurred shortly beforehand. This procedure is repeated every 24 hours.

It can be necessary to determine not only the difference from the last (determined 24 hours ago) measurement value but also the difference from the last but one measurement value (determined 48 hours ago) in order to permit exact determination of ovulation even when the basal temperature value measured at a specific point in time has just started to rise.

Advantageously, the temperature measured is displayed in the numerical display of a digital watch. It is possible to use the usual time display window but it is also possible to provide a special window. If the difference between the temperature value measured last and the value of the body temperature measured 24 hours (or 48 hours) ago exceeds the reference value this is indicated specially, for example by a blinking display of the measured temperature, thereby signalling completed ovulation.

Thus, the device according to the invention permits regular measurement of the female basal temperature in a surprisingly simple manner at an exactly specified time and immediate recognition of ovulation which has occurred shortly beforehand by simultaneous comparison of this temperature value with previously measured values.

The features of the invention disclosed in the above description and the claims can be essential, individually and in any combination, to implementation of the various embodiments of the invention.

Claims

1. Device for recognizing the time of ovulation in the female cycle by determination of the basal temperature at regular intervals using a temperature sensor, characterized in that the temperature sensor is integrated in the lower side of a watch which also contains a device for recording and storing the woman's temperature at a specific point in time every 24 hours, and for comparing this temperature value with the temperature value recorded and stored 24 hours and/or 48 hours beforehand.
2. Device for recognizing the time of ovulation in the female cycle according to Claim 1, characterized in that the device records the respective temperature value at a specific point in time every 24 hours, compares it with the temperature value(s) recorded and stored 24 and/or 48 hours ago, and in the presence of a difference between the present temperature value and the temperature value(s) recorded and stored 24 hours ago and/or 48 hours ago exceeding a predefined reference value prompts a special display.
3. Device according to Claim 1 or 2, characterized in that the temperature sensor and the device are integrated in a digital watch.
4. Device according to Claim 3, characterized by a display of the respective temperature measured in the numerical window of the digital watch.
5. Device according to Claim 4, characterized by a blinking display of the respective temperature measured in the presence of a difference exceeding the predefined reference value.